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## (54) SURFACE TREATING AGENT FOR COPPER BASED MATERIAL

## (57)Abstract:

PROBLEM TO BE SOLVED: To obtain an oxide film having excellent discoloration preventing effect and adhesive property to a copper based material by using a surface treating agent composed of an aq. solution containing at least one kind selected from a polyoxyalkylene nonionic surfactant and a phosphoric ester anionic surfactant and having specified pH.

SOLUTION: The aq. solution having pH 1-7 is provided. The surfactant is preferably one kind selected from ethylenediaminetetrapolyoxyalkylene ether, polyoxyalkylene phenyl phenol ether and the like and the content of the surfactant is 0.01-5 g/l, an inorganic acid and/or an organic acid is blended to adjust pH 1-7 and alkali metal salt of the acid used for the adjustment of pH is contained as a pH buffer and after the contact with the surface treating agent for copper based material, the copper base material is heated at 50-500° C. The treatment of the copper based material is carried out by dipping, spraying, brush coating or the like. The oxide film having remarkably excellent adhesive property is formed by heating after surface treatment.

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(54) 【発明の名称】 銅系材料用表面処理剤

(57) 【要約】

【課題】有機溶剤を含有しない銅系材料用表面処理剤であって、銅系材料に対して優れた変色防止効果を有し、しかも表面処理後に熱が加わった場合に形成される酸化皮膜が、非常に良好な密着性を有するものとなる処理剤を提供する。

【解決手段】ポリオキシアルキレン型ノニオン性界面活性剤及びリン酸エステル型アニオン性界面活性剤から選ばれた少なくとも一種の界面活性剤を含有するpH1〜7の水溶液からなる銅系材料用表面処理剤。

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【特許請求の範囲】

【請求項1】ポリオキシアルキレン型ノニオン性界面活性剤及びリン酸エステル型アニオン性界面活性剤から選ばれた少なくとも一種の界面活性剤を含有するpH1〜7の水溶液からなる銅系材料用表面処理剤。

【請求項2】界面活性剤が、エチレンジアミンテトラポリオキシアルキレンエーテル、ポリオキシアルキレンフェニルフェノールエーテル、ポリオキシアルキレンビスフェノールAエーテル、ロジンポリアルキレングリコールエステル、ポリオキシエチレンアルキルエーテルリン酸エステル、ポリオキシエチレンアルキルエーテルリン酸エステルアルカリ金属塩、ポリオキシエチレンフェニルエーテルリン酸エステル、ポリオキシエチレンフェニルエーテルリン酸エステルアルカリ金属塩、ポリオキシエチレンアルキルフェニルエーテルリン酸エステル、及びポリオキシエチレンアルキルフェニルエーテルリン酸エステルアルカリ金属塩から選ばれた少なくとも一種である請求項1に記載の銅系材料用表面処理剤。

【請求項3】界面活性剤の含有量が0.01〜5g/lであり、無機酸及び/又は有機酸を配合してpH1〜7に調整された請求項1又は2に記載の銅系材料用表面処理剤。

【請求項4】更に、pH緩衝剤として、pH調整に用いた酸のアルカリ金属塩を含有する請求項1〜3のいずれかに記載の銅系材料用表面処理剤。

【請求項5】請求項1〜4のいずれかに記載された銅系材料用表面処理剤を銅系材料に接触させることを特徴とする銅系材料の表面処理方法。

【請求項6】請求項1〜4のいずれかに記載された銅系材料用表面処理剤を銅系材料に接触させた後、50〜500℃で加熱処理することを特徴とする銅系材料の表面処理方法。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、銅系材料用表面処理剤及び銅系材料の表面処理方法に関する。

【0002】

【従来の技術】リードフレームとは、半導体チップの組立に用いられるシート状部品であり、タイプド部に半導体チップをマウントし、リード部分とのワイヤボンディングを行った後、樹脂封止することによって半導体チップが形成される。

【0003】通常、該リードフレームのリード部分等は、銅又は銅合金で構成されるか、或いは、銅又は銅合金のめっき皮膜が形成されている。半導体製造工程においては、リードフレームの部分鋳めき、鋳めき後の不要部分のめっき剥離、半導体チップのマウント、ワイヤボンディング、樹脂封止等の各処理が行われており、これらの処理の間に、リードフレームは、一時的に保管されたり、或いは、処理のために移動されることがあ

り、その際の銅金属部分の変色を防止するために、変色防止処理が施されている。

【0004】従来は、銅金属の変色防止剤としては、ベンゾトリアゾール誘導体、メルカプトベンゾチアゾール誘導体、イミダゾール誘導体、アミン類等が使用されてきたが、近年では性能向上を目的として種々の改良がなされている。例えば、ベンゾトリアゾール又はベンゾトリアゾール誘導体、ポリエステル系可塑剤、及び溶剤からなる銅用防錆剤組成物（特開平1-212782号公報）、ベンゾトリアゾール又はベンゾトリアゾール誘導体、リン酸系可塑剤、及び溶剤からなる銅用防錆剤組成物（特開平1-219183号公報）、2位長鎖アルキルイミダゾール化合物と銅イオンを含有する処理液（特公5-69914号公報）、5、6-ジメチル-1Hベンゾトリアゾール及び/又は2-メルカプトピリミジンと、無機酸及び/又は有機酸を含有する銅の変色防止液（特許第2550436号公報）、5、6-ジメチル-1Hベンゾトリアゾール及び/又は5、6-ジメチル-1Hベンゾトリアゾールから選択されるベンゾトリアゾール誘導体と、無機酸及び/又は有機酸を含有する酸性溶液に、EDTAキレート剤を添加した銅の変色防止液（特許第2687195号公報）等が報告されている。

【0005】しかしながら、これらの処理剤を用いて銅金属の変色防止処理を行うと、その後、変色防止処理された金属に熱が加わった場合に、その表面に極端に密着性が悪い酸化皮膜が形成され、この酸化皮膜が酸化されていない銅金属素材から簡単に剝離するという問題点がある。

【0006】リードフレームは、通常、半導体チップのマウント、ワイヤボンディング、樹脂封止等の種々の工程で加熱されるために、従来の変色防止剤を用いて変色防止処理を行った銅金属部分には密着性の悪い酸化物皮膜が形成され易く、その結果、封止樹脂と銅金属部分との間で剝離が生じ、樹脂封止が不完全となることがある。そのため、封止樹脂の欠陥部から水分等が侵入して内部回路が破壊され、半導体部品の信頼性が著しく低下するという問題点がある。

【0007】更に、上記した変色防止剤の中で有機溶剤を使用したものについては、作業環境、労働衛生上において好ましくないという問題点もある。

【0008】

【発明が解決しようとする課題】本発明の主目的は、有機溶剤を含有しない銅系材料用表面処理剤であって、銅系材料に対して優れた変色防止効果を発揮し、しかも表面処理後に熱が加わった場合に形成される酸化皮膜が、非常に良好な密着性を有するものとなる処理剤を提供することである。

【0009】

【課題を解決するための手段】本発明者は、上記の如き従来技術の問題点を解決するため鋭意研究を重ねてき

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た。その結果、特定のノニオン性界面活性剤及びアニオン性界面活性剤から選ばれた少なくとも一種の界面活性剤を含有する酸性水溶液を用いて銅系材料の表面処理を行う場合には、優れた変色防止効果が発揮されると同時に、加熱された場合に形成される酸化皮膜が非常に密着性に優れたものとなることを見出した。更に、該表面処理剤による処理を行った後、一定の条件下で加熱処理を行うことによって、極めて密着性の良好な酸化皮膜が形成され、その後、処理品に熱が加わった場合であっても、酸化皮膜の密着性が殆ど低下しないことを見出し、ここに本発明を完成するに至った。

【0010】即ち、本発明は、以下の銅系材料用表面処理剤、及び銅系材料の表面処理方法を提供するものである。

【0011】(1) ポリオキシアルキレン型ノニオン性界面活性剤及びリン酸エステル型アニオン性界面活性剤から選ばれた少なくとも一種の界面活性剤を含有する pH1~7 の水溶液からなる銅系材料用表面処理剤。

【0012】(2) 界面活性剤が、エチレンジアミンテトラポリオキシアルキレンエーテル、ポリオキシアルキレンフェニルフェノールエーテル、ポリオキシアルキレンビスフェノールAエーテル、ロジニポリアルキレングリコールエステル、ポリオキシエチレンアルキルエーテルリン酸エステル、ポリオキシエチレンアルキルエーテルリン酸エステルアルカリ金属塩、ポリオキシエチレンフェニルエーテルリン酸エステル、ポリオキシエチレンフェニルエーテルリン酸エステルアルカリ金属塩、ポリオキシエチレンアルキルフェニルエーテルリン酸エステル、及びポリオキシエチレンアルキルフェニルエーテルリン酸エステルアルカリ金属塩から選ばれた少なくとも一種である上記1に記載の銅系材料用表面処理剤。

【0013】(3) 界面活性剤の含有量が、0.01~5 g/l であり、無機酸及び/又は有機酸を配合して pH1~7 に調整された上記1又は2に記載の銅系材料用表面処理剤。

【0014】(4) 更に、pH 緩衝剤として、pH 調整に用いた該のアルカリ金属塩を含有する上記1~3のいずれかに記載の銅系材料用表面処理剤。

【0015】(5) 上記処理1~4のいずれかに記載された銅系材料用表面処理剤を銅系材料に接触させることを特徴とする銅系材料の表面処理方法。

【0016】(6) 上記処理1~4のいずれかに記載された銅系材料用表面処理剤を銅系材料に接触させた後、50~500℃で加熱処理することを特徴とする銅系材料の表面処理方法。

【0017】  
【発明の実施の形態】本発明の銅系材料用表面処理剤は、ポリオキシアルキレン型ノニオン性界面活性剤及びリン酸エステル型アニオン性界面活性剤から選ばれた少なくとも一種の界面活性剤を含有する pH1~7 の水溶

液である。

【0018】ポリオキシアルキレン型ノニオン性界面活性剤の好ましい例としては、エチレンジアミンテトラポリオキシアルキレンエーテル、ポリオキシアルキレンフェニルフェノールエーテル、ポリオキシアルキレンビスフェノールAエーテル、ロジニポリアルキレングリコールエステル等を挙げることができる。これらのノニオン性界面活性剤に含まれるポリオキシアルキレン中のアルキレンオキシドとしては、プロピレンオキシド、エチレンオキシド等の炭素数2~3のアルキレンオキシドが好ましく、これらが一種単独又は二種以上が混在していても良く、結合順はブロックでもランダムでも良い。特に、溶解性が良好である点からアルキレンオキシドに占めるエチレンオキシド (EO) が10%以上のものが好ましい。ノニオン性界面活性剤は、数平均分子量が1000~8000程度のものが好適である。

【0019】リン酸エステル型アニオン性界面活性剤の好ましい例としては、ポリオキシエチレンアルキルエーテルリン酸エステル、ポリオキシエチレンフェニルエーテルリン酸エステル、ポリオキシエチレンアルキルフェニルエーテルリン酸エステル等のリン酸エステル。これらのリン酸エステルのアルカリ金属 (Na, K等) 塩等を挙げることができる。これらのリン酸エステルは、ポリオキシエチレンアルキルエーテル、ポリオキシエチレンフェニルエーテル、ポリオキシエチレンアルキルフェニルエーテル等のノニオン性のポリオキシアルキレン型界面活性剤をリン酸エステル化したものであり、リン酸エステル化は、モノエステル、ジエステル、トリエステルの何れでも良く、溶解性等に応じて適宜選択すればよい。ポリオキシエチレンアルキルエーテルにおけるアルキル基としては、炭素数10~20程度のものが好適であり、具体例としては、ラウリル、ステアリル、オレイル等を挙げることができる。ポリオキシエチレンアルキルフェニルエーテルにおけるアルキル基としては、炭素数5~10程度のものが好適であり、具体例としては、オクチル、ノルル等を挙げることができる。これらのノニオン性のポリオキシアルキレン型界面活性剤としては、リン酸エステル化前のHLBとしては、5~15程度となる様にエチレンオキシド (EO) が付加されているものを例示できる。

【0020】本発明の表面処理剤では、上記したポリオキシアルキレン型ノニオン性界面活性剤及びリン酸エステル型アニオン性界面活性剤から選ばれた界面活性剤を一種単独又は二種以上混合して用いることができる。界面活性剤の含有量は、0.01~5 g/l 程度とすることが好ましい。

【0021】本発明の処理剤は、pH1~7程度、好ましくはpH1~4程度に調整して用いる。この様なpH範囲とすることによって、被処理物表面の変色が防止されると共に、水分の除去も容易となって乾燥ゴミ等

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の発生も抑制できる。更に、界面活性剤の溶解性も向上する。

【0022】pH調整は、酸と水酸化アルカリ（Na、K等）を用いて行えば良い。pH調整に使用する酸としては、塩酸、硫酸、リン酸等の無機酸、炭酸、酢酸、乳酸、酒石酸、コハク酸、クエン酸、グルコン酸等の有機酸等挙げることができる。これらを一種単独又は二種以上混合して用いることができる。これらの酸の内では、安価で排水処理が容易である点から、無機酸が好ましく、硫酸がより好ましい。

【0023】本発明の表面処理剤には、更に、必要に応じて、pH変動を抑制するために、pH緩衝剤として、pH調整に用いた酸の塩を配合することができる。塩の種類としては、例えば、アルカリ金属（Na、K）塩等を挙げることができる。塩の配合量については、pH緩衝剤としての効果が発揮できる量とすればよく、通常、表面調整剤としての水溶液中に1～5％程度の濃度となるように配合すればよい。

【0024】本発明の表面処理剤は、特に、長期間連続して安定に使用するためには、pH調整に無機酸を用い、pH緩衝剤として無機酸のアルカリ金属塩を配合したものが好ましく、pH調整に硫酸を用い、pH緩衝剤として硫酸のアルカリ金属塩を配合したものがより好ましい。

【0025】本発明の表面処理剤は、水に各成分を溶解した後、pHを所定の範囲とすることによって調製できるが、その他に、予め、所定の量の界面活性剤、酸類などを配合した濃厚液を調製しておき、これを使用時に希釈して用いてもよい。濃厚液とする場合には、界面活性剤成分の溶解性を良好にするために、メタノール、エタノール、イソプロピルアルコール等のアルコール類を少量配合してもよい。アルコール類の配合量は、通常、濃厚液を使用状態の表面処理剤濃度となるように希釈した場合に、アルコール濃度が1％程度以下となる量とすることが好ましい。

【0026】本発明の表面処理剤を用いて銅系材料を処理するには、本発明の表面処理剤を処理対象とする銅系材料に接触せればよい。接触させる方法については、特に限定はなく、浸漬、スプレー、ハケ塗り等の各種方法を適宜選択できる。

【0027】処理条件は、処理液の液温を10～80℃程度として、接触時間を2秒～10分間程度とすればよい。

【0028】処理対象の銅系材料としては、銅金属又は銅合金を用いることができる。また、表面に銅又は銅合金によるめっき皮膜を形成した材料も処理対象とすることができる。銅合金の種類については、特に限定はなく、例えば、真鍮、青銅などの銅合金やリードフレーム用の各種銅合金等を処理対象とすることができる。リードフレーム用銅合金としては、各種のものが知られてお

り、いずれも限定なく用いることができる。例えば、銅以外の合金金属として、Fe、Ni、Zn、Sn、Ti、Mg、Zr、Si、P、Cr、Ag等を含計量として重量％程度以下含有する銅合金を例示できる。

【0029】この様にして処理された銅系材料の表面には、分子レベルの薄い有機皮膜が形成され、銅系材料の変色を室温～250℃程度の大气雰囲気中において抑制することができる。その結果、例えば、銅系材料部分を含むリードフレームは、半導体部品への製造工程における、部分組めつきの電解剥離後から、内部回路の搭載、形成までの一時的な保管、輸送時などにおいて、銅系材料表面の変色が抑制される。

【0030】また、本発明の表面処理剤で処理された銅系材料は、加熱された場合に、表面部分に緻密で強固な酸化皮膜が形成される。形成される酸化皮膜は、酸化されていない銅系材料素材との密着性が良好であり、例えば、リードフレームの銅表面を本発明の処理剤で処理した後、処理品を乾燥する工程や、その後の回路部品の搭載、回路形成のためのボンディング、樹脂封止の形成等の各種の処理によって加熱された場合に、形成される酸化皮膜の密着性が良好であることから、樹脂封止部分に欠陥が生じることがなく、高い信頼性を有する半導体製品が得られる。

【0031】また、本発明の表面処理剤で処理された銅系材料が上記した様な各種の処理工程中に加熱されて酸化皮膜が形成される前に、表面処理剤で処理した銅系材料を、予め加熱処理して酸化皮膜を形成させることによって、酸化皮膜の密着性をより向上させることができる。

【0032】この熱処理は、通常、50～500℃程度の温度で、2秒～10時間程度行えばよい。好ましくは、加熱温度が上記範囲内において比較的低い場合、即ち、200℃程度以下の温度では、10分～10時間程度加熱すればよく、それを上回る温度では、10分程度以下の加熱時間とすることができる。加熱雰囲気は、通常、大気中とすればよい。加熱方法については特に限定はなく、ドライヤーによる温風加熱、温風循環式のオーブン、赤外線ヒーター等の素材を間接的に加熱する方法、ホットプレート等の加熱装置に接触させる方法、直火による直接的な加熱方法等の何れの方法でも良い。

【0033】この様にして加熱処理をすることによって、本発明の表面処理剤で処理された銅系材料の表面には緻密で非常に密着性の良い酸化皮膜が形成される。この様にして酸化皮膜を形成した場合には、その後半導体製品の製造工程において、熱が加わった場合にも、既に緻密な酸化皮膜が形成されていることにより、酸化が進行し難く、粗雑な酸化皮膜が形成されることが防止されて、酸化皮膜の密着性が低下することはない。

【0034】

【発明の効果】本発明の表面処理剤で処理された銅系材

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料は、変色が生じ難く、乾燥ジミ等も殆ど生じない。そして、半導体の製造工程などで熱が加わった場合にも、形成される酸化皮膜の密着性が非常に良好であることから、半導体製品の樹脂封止部分等に欠陥が生じることはなく、高い信頼性を有するものとなる。

【0035】更に、本発明表面処理剤で処理した後、熱処理を行って酸化皮膜を形成した場合には、特に密着性の良好な酸化皮膜が形成されて、非常に信頼性の良い半導体製品を得ることができる。

【0036】

【実施例】以下に、実施例を示して本発明をさらに詳細に説明する。

【0037】実施例1

表面を研磨した2.5×5.0cmの銅板(リン脱酸銅

\*表面処理剤

(本発明品1)

硫酸2カリウム : 1g/1

エチレンジアミンテトラポリオキシアルキレンエーテル

(商標名:ペボル D-304、東邦化学製) : 0.5g/1

pH: 1.5 (硫酸により調整)

(本発明品2)

ポリオキシエチレンフェニルエーテルリン酸エステル

(商標名:ホスファノール LP-700、東邦化学製)

: 1.0 g/1

pH: 2.5 (硫酸により調整)

(本発明品3)

ポリオキシエチレンアルキルエーテルリン酸エステル

(商標名:ホスファノール RS-710、東邦化学製)

: 0.1g/1

pH: 2.2 (硫酸により調整)

(本発明品4)

ポリオキシエチレンフェニルフェノールエーテル

(商標名:TS-2000、東邦化学製) : 0.2g/1

エチレンジアミンテトラポリオキシアルキレンエーテル

(商標名:ペボル D-304、東邦化学製) : 0.3g/1

pH: 2.0 (硫酸により調整)

(本発明品5)

ポリオキシエチレンビスフェノールAエーテル

(商標名:ビスオール 18EN、東邦化学製) : 0.5g/1

ポリオキシエチレンフェニルエーテルリン酸エステル

(商標名:ホスファノール LP-700、東邦化学製)

: 0.5g/1

pH: 1.8 (硫酸により調整)

(本発明品6)

ロジンポリアルキレングリコールエステル

(商標名:DRA-1500、東邦化学製) : 0.5g/1

ポリオキシエチレンフェニルエーテルリン酸エステル

(商標名:ホスファノール LP-700、東邦化学製)

: 0.3g/1

pH: 2.0 (硫酸により調整)

素材)を試験片として、アルカリ脱脂及び酸活性を行い、以下に示す各組成の表面処理剤(水溶液)に浸漬し、電気炉(300℃、大気雰囲気)中で5分間加熱した。

【0038】その後、生成した酸化皮膜の表面に粘テープ(商標名:スコッチ810)を貼り付け、酸化皮膜表面に対して垂直に引き剥がすことによって、酸化皮膜の密着性を評価した。また、表面処理液に浸漬していない試験片(ブランク)についても同様の試験を行った。

【0039】また、変色防止効果については、加熱試験前の試験片を純水中に入れ、5分間煮沸した後、目視により変色の有無を評価した。

【0040】以上の結果を下記表1に示す。

【0041】

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(比較品1)

ベンゾトリアゾール系誘導体含有タイプ変色防止剤  
(商標名: トップ防錆剤511、奥野製薬工業製)

: 20 ml / l

(比較品2)

ベンゾトリアゾール系誘導体含有タイプ変色防止剤  
(商標名: OPCデフェンサー、奥野製薬工業製)

: 5 ml / l

【0042】

【表1】

	浸漬温度	浸漬時間	テープ剥離試験	純水煮沸試験
プラント	—	—	剥離なし	褐色に変色
本発明品1	35℃	30秒	剥離なし	変色を認めず
本発明品2	35℃	30秒	剥離なし	変色を認めず
本発明品3	35℃	30秒	剥離なし	変色を認めず
本発明品4	35℃	30秒	剥離なし	変色を認めず
本発明品5	35℃	30秒	剥離なし	変色を認めず
本発明品6	35℃	30秒	剥離なし	変色を認めず
比較品1	30℃	30秒	全面剥離	変色を認めず
比較品2	30℃	30秒	全面剥離	変色を認めず

【0043】以上の結果から明らかなように、本発明の表面処理剤を用いて銅系材料を表面処理した場合には、優れた変色防止効果が発揮され、しかも、その後加熱さ

れた際に生成する酸化皮膜の密着性も非常に良好である。

フロントページの続き

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\* NOTICES \*

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention about the unauthorized use prevention method of a cell phone unit and a cell phone unit which communicates with other telephone devices via the base station device in a mobile communications system, When especially loss or a theft etc. is encountered, it is related with the unauthorized use prevention method of the cell phone unit which can prevent an unauthorized use, and a cell phone unit.

[0002]

[Description of the Prior Art]Conventionally, unauthorized use prevention methods of this kind of cell phone unit and a cell phone unit include some which are indicated to JP,6-188829,A. The cell phone unit currently indicated by this gazette is explained with reference to drawing 4. [0003]Drawing 4 is a block diagram showing the composition of the conventional cell phone unit.

[0004]When loss or a theft is encountered, the cell phone unit 400 shown in drawing 4 is constituted so that the cell phone unit 400 may come to an owner on the contrary, and a disable message and a return message may be generated and it may display.

[0005]That is, based on the ID code registered by the ID code registration means 401, communication is forbidden, and at the time of this prohibition, the communication prohibition control means 402 generates a disable message and a return message, and displays by the warning information announcement means 403.

[0006]In addition, the cell phone unit currently indicated by JP,11-69447,A is explained with reference to drawing 5.

[0007]The cell phone unit 500 shown in this drawing 5 is the communication equipment which the failure of loss or the use to the time of a theft by an owner can set up easily. Memorize the control code 501 transmitted from a mating terminal device at the time of mail



arrival to the code storage part 502, and by the key operation invalid means 503. When the mothballs code 504 beforehand memorized by the code storage part 502 and the control code 501 are compared and both sides are in agreement, key operation after it is repealed.

[0008]

[Problem(s) to be Solved by the Invention]However, in the conventional device, for example at the time of loss or the theft of the cell phone unit 500. When the possessor transmits the control code 501 and key operation of the cell phone unit 500 is repealed, Since the cell phone unit 500 is not displayed no communication information, or it is pronounced, and connection cannot be attached and key operation is invalid, when the person who found the cell phone unit 500 tells the loss, There is a problem that connection by use of the cell phone unit 500 cannot be performed, either.

[0009]This invention is made in view of this point, and is a thing.

The purpose is to provide the unauthorized use prevention method of a cell phone unit and a cell phone unit which it can prevent, for example, a finder can have at the time of loss, and can mainly contact from a finding cell phone unit.

[0010]

[Means for Solving the Problem]A detection means by which a cell phone unit of this invention detects location registration information on a self-cell phone unit, An auto-answering means which auto-answers according to an auto-answering command received from other telephone devices at the time of detection of said location registration information, The 1st memory measure that memorizes a password, and a password received from a telephone device besides the above after said auto-answering, A decision means which judges coincidence/disagreement with said memorized password, and the 2nd memory measure that memorizes two or more telephone numbers, When coincidence of said password is judged, composition possessing a control means regulated so that it can send only by a memory telephone number of said 2nd memory measure from a self-cell phone unit is taken.

[0011]According to this composition, a cell phone unit for example, even if it encountered loss or a theft, when that owner noticed it, Since it is regulated so that it can send to a cell phone unit only by a memory telephone number from a cell phone unit by performing an auto-answering command and transmission of a password after dispatch by key input operations from other telephone devices, unjust use of a cell phone unit can be prevented by this.

[0012]Composition which controls a cell phone unit of this invention in the above-mentioned composition so that it is sent by a memory telephone number, when a certain operation is performed a control means from a self-cell phone unit at the time of regulation is taken.

[0013]According to this composition, if a finder of a cell phone unit performs a certain key

operation of a cell phone unit, a telephone number specified by an owner can get a telephone call, and it can have by this, and can mainly contact, for example.

[0014]In the above-mentioned composition, provide a cell phone unit of this invention to two or more telephone numbers memorized by the 2nd memory measure, and a setting means which specifies a priority used for dispatch a control means, When coincidence of a password is judged by a decision means, dispatch from a self-cell phone unit takes composition regulated so that it may be possible only at a telephone number of said 2nd memory measure according to said priority.

[0015]According to this composition, a cell phone unit for example, even if it encountered loss or a theft, when that owner noticed it, To a cell phone unit, since dispatch from a self-cell phone unit is regulated by performing an auto-answering command and transmission of a password after dispatch by key input operations from other telephone devices so that it may be possible only at a memory telephone number according to a priority, Unjust use of a cell phone unit can be prevented by this.

[0016]In the above-mentioned composition, as for a cell phone unit of this invention, a control means takes composition controlled to be sent by a memory telephone number according to a priority, whenever a certain operation is performed from a self-cell phone unit at the time of regulation.

[0017]According to this composition, if a finder of a cell phone unit performs a certain key operation of a cell phone unit, for example, If a telephone number specified by an owner gets a telephone call, cutting operation of the call connection by dispatch during this dispatch is carried out and key operation is performed again, Since dispatch is performed by the following memory telephone number according to a priority and dispatch by a memory telephone number which followed a priority similarly hereafter is performed, it can have by this and can mainly contact.

[0018]In the above-mentioned composition, a cell phone unit of this invention takes composition possessing a release means of which regulation by a control means is canceled according to a release instruction received from other telephone devices, when coincidence of a password is judged by a decision means.

[0019]According to this composition, by remote control, an owner can cancel regulation by a control means and can return a cell phone unit to a normal state.

[0020]In the above-mentioned composition, a cell phone unit of this invention takes composition possessing the 2nd release means of which regulation by a control means is canceled, when passwords by which the operational input was carried out from a self-cell phone unit are judged to be a memory password of the 1st memory measure, and coincidence by a decision means.

[0021]According to this composition, with hand control, an owner can cancel regulation by a

control means and can return a cell phone unit to a normal state.

[0022]In the above-mentioned composition, when coincidence of a password is judged by a decision means, a cell phone unit of this invention, According to a variation order received from other telephone devices, it becomes the mode of a memory telephone number of the 2nd memory measure which can be changed, and composition possessing an alteration means which changes said memory telephone number into a new telephone number received from a telephone device besides the above is taken at the time of this mode.

[0023]According to this composition, an owner can change into a cell phone unit arbitrarily a telephone number of a communication destination memorized beforehand by remote control.

[0024]In the above-mentioned composition, a password by which the operational input was carried out from a self-cell phone unit a cell phone unit of this invention, When judged as a memory password of the 1st memory measure, and coincidence by a decision means, it becomes the mode of a memory telephone number of the 2nd memory measure which can be changed, and composition possessing the 2nd alteration means that changes said memory telephone number into a new telephone number by which the operational input was carried out from a self-cell phone unit is taken at the time of this mode.

[0025]According to this composition, an owner can change into a cell phone unit arbitrarily a telephone number of a communication destination memorized beforehand with hand control.

[0026]In the above-mentioned composition, when coincidence of a password is judged by a decision means, a cell phone unit of this invention, becoming the mode of a priority specified by a setting means which can be changed according to a variation order received from other telephone devices -- the time of this mode -- said priority -- said -- others -- composition possessing the 3rd alteration means changed into a new priority received from a telephone device is taken.

[0027]According to this composition, an owner can change arbitrarily a priority which uses a memory telephone number of a cell phone unit for dispatch by remote control.

[0028]According to this composition, an owner can change into a cell phone unit arbitrarily a telephone number of a communication destination memorized beforehand by remote control.

[0029]In the above-mentioned composition, a password by which the operational input was carried out from a self-cell phone unit a cell phone unit of this invention, When judged as a memory password of the 1st memory measure, and coincidence by a decision means, it becomes the mode of a priority specified by a setting means which can be changed, and composition possessing the 4th alteration means that changes said priority into a new priority by which the operational input was carried out from a self-cell phone unit is taken at the time of this mode.

[0030]According to this composition, an owner can change arbitrarily a priority which uses a memory telephone number of a cell phone unit for dispatch with hand control.

[0031]Information terminal equipment of this invention takes which composition of the above, and composition possessing same cell phone unit.

[0032]According to this composition, in information terminal equipment, the same operation effect as which composition of the above can be obtained.

[0033]A mobile communications system of this invention possesses the same cell phone unit as which composition of the above, or information terminal equipment of the above-mentioned composition, and. A 2nd detection means to detect location registration information on said cell phone unit, and the 3rd memory measure that memorizes an auto-answering command and a password which received from other telephone devices at the time of un-detecting of said location registration information, At the time of detection of location registration information transmitted from said cell phone unit, composition possessing a base station device which has a transmitting means which transmits an auto-answering command and a password which were memorized by said 3rd memory measure to said cell phone unit is taken.

[0034]According to this composition, in a mobile communications system, the same operation effect as which composition of the above can be obtained, Even when dispatch is omitted yet from a cell phone unit which encountered loss or a theft, for example, When the owner performs an auto-answering command and transmission of a password after dispatch to a cell phone unit by key input operations from other telephone devices, When the auto-answering command and password are once memorized by base station device and dispatch use of the cell phone unit is carried out, Since the auto-answering command and password which were memorized are automatically transmitted to a cell phone unit, it can regulate so that it can send only by a memory telephone number from a cell phone unit by this, and unjust use of a cell phone unit can be prevented.

[0035]An unauthorized use prevention method of a cell phone unit of this invention, A password which auto-answered according to an auto-answering command received from other telephone devices at the time of detection of location registration information on a self-cell phone unit, and was received from a telephone device besides the above after this auto-answering, When a password memorized beforehand was in agreement, it was made for dispatch from a self-cell phone unit to regulate so that it may be possible only at a telephone number memorized beforehand.

[0036]According to this method, a cell phone unit for example, even if it encountered loss or a theft, when that owner noticed it, Since it is regulated so that it can send to a cell phone unit only by a memory telephone number from a cell phone unit by performing an auto-answering command and transmission of a password after dispatch by key input operations from other telephone devices, unjust use of a cell phone unit can be prevented by this.

[0037]

[Embodiment of the Invention]Hereafter, an embodiment of the invention is described in detail

with reference to drawings.

[0038](Embodiment 1) Drawing 1 is a block diagram showing the composition of the cell phone unit concerning the embodiment of the invention 1.

[0039]The cell phone unit 100 shown in this drawing 1 is provided with the detection means 101, the auto-answering means 102, the password reception means 103, the password memory measure 104, the decision means 105, the contact memory measure 106, the communication destination control means 107, and the communication ranking setting means 108, and is constituted.

[0040]The detection means 101 detects the existence of the location registration information on the self-cell phone unit 100 which is transmitted to the exchange station which does not illustrate at the time of the dispatch from the cell phone unit 100, and is held.

[0041]When detected with those with location registration information by the detection means 201, when the auto-answering means 102 detects the auto-answering command inputted from the telephone device, it receives a message automatically after the submission operation from other telephone devices to the cell phone unit 100.

[0042]The password reception means 103 receives the password inputted from the above-mentioned telephone device after auto-answering by the auto-answering means 102.

[0043]The password memory measure 104 memorizes the password defined beforehand. Setting storing of this password is done by the owner of the cell phone unit 100.

[0044]The decision means 105 compares the password received by the password reception means 103, and the password memorized by the password memory measure 104, and judges its coincidence/disagreement.

[0045]The contact memory measure 106 memorizes the telephone number of two or more of other telephone devices which are contacts. Setting storing of two or more of these telephone numbers is done by the owner of the cell phone unit 100.

[0046]The communication ranking setting means 108 specifies the priority used for dispatch to two or more telephone numbers memorized by the contact memory measure 106.

[0047]When it is judged that the password of the communication destination control means 107 corresponds by the decision means 105, the calling destination (communication destination) from the cell phone unit 100 is controlled possible only to the telephone number according to the priority specified by the communication ranking setting means 108.

[0048]Drawing 2 is a block diagram showing the composition of the base station device which communicates with the cell phone unit 100 concerning the embodiment of the invention 1.

[0049]The base station device 200 shown in this drawing 2 is provided with the detection means 201, the input memory measure 202, and the transmit information transmitting means 203, and is constituted.

[0050]The detection means 201 detects the existence of the location registration information

on the self-cell phone unit 100 which was transmitted to the exchange station at the time of the dispatch from the cell phone unit 100, and was held.

[0051]The input memory measure 202 memorizes the auto-answering command inputted from the telephone device at the time of the dispatch to the cell phone unit 100 from telephone devices other than cell phone unit 100, when having no location registration information is detected by the detection means 201.

[0052]The transmit information transmitting means 203 transmits the auto-answering command memorized by the input memory measure 202 to the cell phone unit 100, when location registration information has been transmitted from the cell phone unit 100.

[0053]It explains with reference to operation of the cell phone unit 100 of such composition, and the base station device 200.

[0054]First, the owner of the cell phone unit 100 presupposes that he noticed loss or the theft of the cell phone unit 100, for example. In this case, an owner telephones his own cell phone unit 100 from other telephone devices. Dispatch is performed via the base station device 200 by this to the cell phone unit 100 from an exchange station.

[0055]Under the present circumstances, auto-answering will be performed by the auto-answering means 102, if the auto-answering command is inputted from other telephone devices by the detection means 101 when the location registration information on the cell phone unit 100 is detected with owner \*\*.

[0056]If this auto-answering was performed, after the password inputted with the auto-answering command from other telephone devices will be received by the password reception means 103, by the decision means 105. The received password and the password memorized by the password memory measure 104 are compared, and its coincidence/disagreement is judged.

[0057]As a result, when it is judged that both passwords are in agreement, the calling destination from the cell phone unit 100 is controlled by the communication destination control means 107 possible only to the memory telephone number of the contact memory measure 106 according to the priority specified by the communication ranking setting means 108.

[0058]On the other hand, by the detection means 101, when the location registration information on the cell phone unit 100 is detected as it is nothing, the auto-answering command and password which were inputted from other telephone devices are memorized by the input memory measure 202 of the base station device 200.

[0059]Then, since the location registration information transmitted to an exchange station will be transmitted to the base station device 200 in this case supposing dispatch is performed from the cell phone unit 100, The location registration information is detected by the transmit information transmitting means 203, and the auto-answering command memorized by this at the input memory measure 202 is transmitted to the cell phone unit 100.

[0060]If this transmitted auto-answering command is detected by the detection means 101 of the cell phone unit 100, the cell phone unit 100 will perform the same operation as the above.

[0061]The communication destination control means 107 as mentioned above the communication destination from the cell phone unit 300, If a certain key operation is performed in the cell phone unit 100 when it is in the state of controlling possible, the communication destination control means 107 will send only to the memory telephone number according to the priority specified by the communication ranking setting means 108 only to the telephone number memorized by the contact memory measure 106.

[0062]In this case, if cutting operation of the call connection by dispatch during that dispatch is carried out and submission operation is performed again, according to the priority specified by the communication ranking setting means 108, dispatch will be performed by the following memory telephone number. Dispatch by the memory telephone number which followed the priority similarly hereafter is performed.

[0063]Thus, according to the cell phone unit 100 and the base station device 200 of Embodiment 1, the cell phone unit 100 for example, even if it encountered loss or a theft, when the owner noticed it, Unjust use of the cell phone unit 100 can be prevented by performing auto-answering command and transmission of a password after dispatch to the cell phone unit 100 by the key input operations from other telephone devices.

[0064]Since the cell phone unit 100 is regulated so that only the contact specified by an owner may get a telephone call, If the finder of the cell phone unit 100 performs a certain key operation of the cell phone unit 100, the telephone number specified by an owner can get a telephone call, and it can have by this, and can mainly contact.

[0065](Embodiment 2) Drawing 3 is a block diagram showing the composition of the cell phone unit concerning the embodiment of the invention 2. However, in Embodiment 2 shown in this drawing 3, identical codes are given to the portion corresponding to each part of Embodiment 1 of drawing 1, and that explanation is omitted.

[0066]A different point from the thing of Embodiment 1 has the cell phone unit 300 shown in this drawing 3 In having had and constituted the communication destination decontrol means 301 and the contact alteration means 302 in the component of Embodiment 1.

[0067]The communication destination decontrol means 301 cancels the control explained by Embodiment 1 by the communication destination control means 107.

[0068]The contact alteration means 302 changes the priority of the telephone number memorized by the contact memory measure 106 and the memory telephone number specified by the communication ranking setting means 108.

[0069]Operation of the cell phone unit 300 of such composition is explained.

[0070]As first Embodiment 1 explained, when the communication destination control means 107 is in the state of controlling the communication destination from the cell phone unit 300

possible only to the memory telephone number according to the priority specified by the communication ranking setting means 108, the operation of which the control is canceled is explained.

[0071]In this case, an owner inputs a communication destination decontrol command after submission operation from other telephone devices. If the cell phone unit 300 receives this communication destination decontrol command, the communication destination decontrol means 301 will cancel the above-mentioned control state of the communication destination control means 107 according to that communication destination decontrol command. By this, the cell phone unit 300 is anticipated-use possible.

[0072]When making change of the memory telephone number of the contact memory measure 106, and a specification change of the priority after this change, after an owner inputs a telephone number change command and a communication destination priority variation order after submission operation from other telephone devices, a new telephone number and priority are inputted.

[0073]If the cell phone unit 300 receives the telephone number change command and a communication destination priority variation order, The contact alteration means 302 serves as the mode according to these commands, the telephone number of the contact memory measure 106 is changed into the new telephone number received after that, and the priority specified by the communication ranking setting means 108 after this change is changed into a new priority.

[0074]From the cell phone unit 300, the communication destination decontrol means 301 is inputted by the password, and In addition, this inputted password, When the password memorized by the password memory measure 104 is judged to be coincidence by the decision means 105, the above-mentioned control state of the communication destination control means 107 is canceled. By this, the cell phone unit 300 is anticipated-use possible.

[0075]From the cell phone unit 300, a password is inputted by the contact alteration means 302 and This inputted password, In [ become the mode in which change of a memory telephone number and a specification change of the priority after this change are made when the password memorized by the password memory measure 104 is judged to be coincidence by the decision means 105, and ] this state, By the key operation from the cell phone unit 300, the telephone number of the contact memory measure 106 can be changed into a new telephone number, and the priority can be changed into a new priority.

[0076]Thus, the telephone number of the communication destination for which the owner was beforehand remembered by the cell phone unit 300 with remote control or hand control according to the cell phone unit 300 of Embodiment 2, It can change arbitrarily, or the communication regulation by the communication destination control means 107 can be canceled, and the cell phone unit 300 can be returned to a normal state.



[0077]The function of Embodiment 1 or the cell phone unit 100,300 of 2 explained above is applicable to information terminal equipment provided with the cellular phone and computer function which are used with a mobile communications system etc.

[0078]

[Effect of the Invention]As explained above, according to this invention, an unauthorized use can be prevented, for example, a finder can have at the time of loss, and it can mainly contact from a finding cell phone unit.

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**MEANS**

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[Means for Solving the Problem]A detection means by which a cell phone unit of this invention detects location registration information on a self-cell phone unit, An auto-answering means which auto-answers according to an auto-answering command received from other telephone devices at the time of detection of said location registration information, The 1st memory measure that memorizes a password, and a password received from a telephone device besides the above after said auto-answering, A decision means which judges coincidence/disagreement with said memorized password, and the 2nd memory measure that memorizes two or more telephone numbers, When coincidence of said password is judged, composition possessing a control means regulated so that it can send only by a memory telephone number of said 2nd memory measure from a self-cell phone unit is taken.

[0011]According to this composition, a cell phone unit for example, even if it encountered loss or a theft, when that owner noticed it, Since it is regulated so that it can send to a cell phone unit only by a memory telephone number from a cell phone unit by performing an auto-answering command and transmission of a password after dispatch by key input operations from other telephone devices, unjust use of a cell phone unit can be prevented by this.

[0012]Composition which controls a cell phone unit of this invention in the above-mentioned composition so that it is sent by a memory telephone number, when a certain operation is performed a control means from a self-cell phone unit at the time of regulation is taken.

[0013]According to this composition, if a finder of a cell phone unit performs a certain key operation of a cell phone unit, a telephone number specified by an owner can get a telephone call, and it can have by this, and can mainly contact, for example.

[0014]In the above-mentioned composition, provide a cell phone unit of this invention to two or more telephone numbers memorized by the 2nd memory measure, and a setting means which specifies a priority used for dispatch a control means, When coincidence of a password is judged by a decision means, dispatch from a self-cell phone unit takes composition regulated

so that it may be possible only at a telephone number of said 2nd memory measure according to said priority.

[0015]According to this composition, a cell phone unit for example, even if it encountered loss or a theft, when that owner noticed it, To a cell phone unit, since dispatch from a self-cell phone unit is regulated by performing an auto-answering command and transmission of a password after dispatch by key input operations from other telephone devices so that it may be possible only at a memory telephone number according to a priority, Unjust use of a cell phone unit can be prevented by this.

[0016]In the above-mentioned composition, as for a cell phone unit of this invention, a control means takes composition controlled to be sent by a memory telephone number according to a priority, whenever a certain operation is performed from a self-cell phone unit at the time of regulation.

[0017]According to this composition, if a finder of a cell phone unit performs a certain key operation of a cell phone unit, for example, If a telephone number specified by an owner gets a telephone call, cutting operation of the call connection by dispatch during this dispatch is carried out and key operation is performed again, Since dispatch is performed by the following memory telephone number according to a priority and dispatch by a memory telephone number which followed a priority similarly hereafter is performed, it can have by this and can mainly contact.

[0018]In the above-mentioned composition, a cell phone unit of this invention takes composition possessing a release means of which regulation by a control means is canceled according to a release instruction received from other telephone devices, when coincidence of a password is judged by a decision means.

[0019]According to this composition, by remote control, an owner can cancel regulation by a control means and can return a cell phone unit to a normal state.

[0020]In the above-mentioned composition, a cell phone unit of this invention takes composition possessing the 2nd release means of which regulation by a control means is canceled, when passwords by which the operational input was carried out from a self-cell phone unit are judged to be a memory password of the 1st memory measure, and coincidence by a decision means.

[0021]According to this composition, with hand control, an owner can cancel regulation by a control means and can return a cell phone unit to a normal state.

[0022]In the above-mentioned composition, when coincidence of a password is judged by a decision means, a cell phone unit of this invention, According to a variation order received from other telephone devices, it becomes the mode of a memory telephone number of the 2nd memory measure which can be changed, and composition possessing an alteration means which changes said memory telephone number into a new telephone number received from a

telephone device besides the above is taken at the time of this mode.

[0023]According to this composition, an owner can change into a cell phone unit arbitrarily a telephone number of a communication destination memorized beforehand by remote control.

[0024]In the above-mentioned composition, a password by which the operational input was carried out from a self-cell phone unit a cell phone unit of this invention, When judged as a memory password of the 1st memory measure, and coincidence by a decision means, it becomes the mode of a memory telephone number of the 2nd memory measure which can be changed, and composition possessing the 2nd alteration means that changes said memory telephone number into a new telephone number by which the operational input was carried out from a self-cell phone unit is taken at the time of this mode.

[0025]According to this composition, an owner can change into a cell phone unit arbitrarily a telephone number of a communication destination memorized beforehand with hand control.

[0026]In the above-mentioned composition, when coincidence of a password is judged by a decision means, a cell phone unit of this invention, becoming the mode of a priority specified by a setting means which can be changed according to a variation order received from other telephone devices -- the time of this mode -- said priority -- said -- others -- composition possessing the 3rd alteration means changed into a new priority received from a telephone device is taken.

[0027]According to this composition, an owner can change arbitrarily a priority which uses a memory telephone number of a cell phone unit for dispatch by remote control.

[0028]According to this composition, an owner can change into a cell phone unit arbitrarily a telephone number of a communication destination memorized beforehand by remote control.

[0029]In the above-mentioned composition, a password by which the operational input was carried out from a self-cell phone unit a cell phone unit of this invention, When judged as a memory password of the 1st memory measure, and coincidence by a decision means, it becomes the mode of a priority specified by a setting means which can be changed, and composition possessing the 4th alteration means that changes said priority into a new priority by which the operational input was carried out from a self-cell phone unit is taken at the time of this mode.

[0030]According to this composition, an owner can change arbitrarily a priority which uses a memory telephone number of a cell phone unit for dispatch with hand control.

[0031]Information terminal equipment of this invention takes which composition of the above, and composition possessing same cell phone unit.

[0032]According to this composition, in information terminal equipment, the same operation effect as which composition of the above can be obtained.

[0033]A mobile communications system of this invention possesses the same cell phone unit as which composition of the above, or information terminal equipment of the above-mentioned

composition, and. A 2nd detection means to detect location registration information on said cell phone unit, and the 3rd memory measure that memorizes an auto-answering command and a password which received from other telephone devices at the time of un-detecting of said location registration information, At the time of detection of location registration information transmitted from said cell phone unit, composition possessing a base station device which has a transmitting means which transmits an auto-answering command and a password which were memorized by said 3rd memory measure to said cell phone unit is taken.

[0034]According to this composition, in a mobile communications system, the same operation effect as which composition of the above can be obtained, Even when dispatch is omitted yet from a cell phone unit which encountered loss or a theft, for example, When the owner performs an auto-answering command and transmission of a password after dispatch to a cell phone unit by key input operations from other telephone devices, When the auto-answering command and password are once memorized by base station device and dispatch use of the cell phone unit is carried out, Since the auto-answering command and password which were memorized are automatically transmitted to a cell phone unit, it can regulate so that it can send only by a memory telephone number from a cell phone unit by this, and unjust use of a cell phone unit can be prevented.

[0035]An unauthorized use prevention method of a cell phone unit of this invention, A password which auto-answered according to an auto-answering command received from other telephone devices at the time of detection of location registration information on a self-cell phone unit, and was received from a telephone device besides the above after this auto-answering, When a password memorized beforehand was in agreement, it was made for dispatch from a self-cell phone unit to regulate so that it may be possible only at a telephone number memorized beforehand.

[0036]According to this method, a cell phone unit for example, even if it encountered loss or a theft, when that owner noticed it, Since it is regulated so that it can send to a cell phone unit only by a memory telephone number from a cell phone unit by performing an auto-answering command and transmission of a password after dispatch by key input operations from other telephone devices, unjust use of a cell phone unit can be prevented by this.

[0037]

[Embodiment of the Invention]Hereafter, an embodiment of the invention is described in detail with reference to drawings.

[0038](Embodiment 1) Drawing 1 is a block diagram showing the composition of the cell phone unit concerning the embodiment of the invention 1.

[0039]The cell phone unit 100 shown in this drawing 1 is provided with the detection means 101, the auto-answering means 102, the password reception means 103, the password memory measure 104, the decision means 105, the contact memory measure 106, the

communication destination control means 107, and the communication ranking setting means 108, and is constituted.

[0040]The detection means 101 detects the existence of the location registration information on the self-cell phone unit 100 which is transmitted to the exchange station which does not illustrate at the time of the dispatch from the cell phone unit 100, and is held.

[0041]When detected with those with location registration information by the detection means 201, when the auto-answering means 102 detects the auto-answering command inputted from the telephone device, it receives a message automatically after the submission operation from other telephone devices to the cell phone unit 100.

[0042]The password reception means 103 receives the password inputted from the above-mentioned telephone device after auto-answering by the auto-answering means 102.

[0043]The password memory measure 104 memorizes the password defined beforehand. Setting storing of this password is done by the owner of the cell phone unit 100.

[0044]The decision means 105 compares the password received by the password reception means 103, and the password memorized by the password memory measure 104, and judges its coincidence/disagreement.

[0045]The contact memory measure 106 memorizes the telephone number of two or more of other telephone devices which are contacts. Setting storing of two or more of these telephone numbers is done by the owner of the cell phone unit 100.

[0046]The communication ranking setting means 108 specifies the priority used for dispatch to two or more telephone numbers memorized by the contact memory measure 106.

[0047]When it is judged that the password of the communication destination control means 107 corresponds by the decision means 105, the calling destination (communication destination) from the cell phone unit 100 is controlled possible only to the telephone number according to the priority specified by the communication ranking setting means 108.

[0048]Drawing 2 is a block diagram showing the composition of the base station device which communicates with the cell phone unit 100 concerning the embodiment of the invention 1.

[0049]The base station device 200 shown in this drawing 2 is provided with the detection means 201, the input memory measure 202, and the transmit information transmitting means 203, and is constituted.

[0050]The detection means 201 detects the existence of the location registration information on the self-cell phone unit 100 which was transmitted to the exchange station at the time of the dispatch from the cell phone unit 100, and was held.

[0051]The input memory measure 202 memorizes the auto-answering command inputted from the telephone device at the time of the dispatch to the cell phone unit 100 from telephone devices other than cell phone unit 100, when having no location registration information is detected by the detection means 201.

[0052]The transmit information transmitting means 203 transmits the auto-answering command memorized by the input memory measure 202 to the cell phone unit 100, when location registration information has been transmitted from the cell phone unit 100.

[0053]It explains with reference to operation of the cell phone unit 100 of such composition, and the base station device 200.

[0054]First, the owner of the cell phone unit 100 presupposes that he noticed loss or the theft of the cell phone unit 100, for example. In this case, an owner telephones his own cell phone unit 100 from other telephone devices. Dispatch is performed via the base station device 200 by this to the cell phone unit 100 from an exchange station.

[0055]Under the present circumstances, auto-answering will be performed by the auto-answering means 102, if the auto-answering command is inputted from other telephone devices by the detection means 101 when the location registration information on the cell phone unit 100 is detected with owner \*\*.

[0056]If this auto-answering was performed, after the password inputted with the auto-answering command from other telephone devices will be received by the password reception means 103, by the decision means 105. The received password and the password memorized by the password memory measure 104 are compared, and its coincidence/disagreement is judged.

[0057]As a result, when it is judged that both passwords are in agreement, the calling destination from the cell phone unit 100 is controlled by the communication destination control means 107 possible only to the memory telephone number of the contact memory measure 106 according to the priority specified by the communication ranking setting means 108.

[0058]On the other hand, by the detection means 101, when the location registration information on the cell phone unit 100 is detected as it is nothing, the auto-answering command and password which were inputted from other telephone devices are memorized by the input memory measure 202 of the base station device 200.

[0059]Then, since the location registration information transmitted to an exchange station will be transmitted to the base station device 200 in this case supposing dispatch is performed from the cell phone unit 100, The location registration information is detected by the transmit information transmitting means 203, and the auto-answering command memorized by this at the input memory measure 202 is transmitted to the cell phone unit 100.

[0060]If this transmitted auto-answering command is detected by the detection means 101 of the cell phone unit 100, the cell phone unit 100 will perform the same operation as the above.

[0061]The communication destination control means 107 as mentioned above the communication destination from the cell phone unit 300, If a certain key operation is performed in the cell phone unit 100 when it is in the state of controlling possible, the communication destination control means 107 will send only to the memory telephone number according to the

priority specified by the communication ranking setting means 108 only to the telephone number memorized by the contact memory measure 106.

[0062]In this case, if cutting operation of the call connection by dispatch during that dispatch is carried out and submission operation is performed again, according to the priority specified by the communication ranking setting means 108, dispatch will be performed by the following memory telephone number. Dispatch by the memory telephone number which followed the priority similarly hereafter is performed.

[0063]Thus, according to the cell phone unit 100 and the base station device 200 of Embodiment 1, the cell phone unit 100 for example, even if it encountered loss or a theft, when the owner noticed it, Unjust use of the cell phone unit 100 can be prevented by performing auto-answering command and transmission of a password after dispatch to the cell phone unit 100 by the key input operations from other telephone devices.

[0064]Since the cell phone unit 100 is regulated so that only the contact specified by an owner may get a telephone call, If the finder of the cell phone unit 100 performs a certain key operation of the cell phone unit 100, the telephone number specified by an owner can get a telephone call, and it can have by this, and can mainly contact.

[0065](Embodiment 2) Drawing 3 is a block diagram showing the composition of the cell phone unit concerning the embodiment of the invention 2. However, in Embodiment 2 shown in this drawing 3, identical codes are given to the portion corresponding to each part of Embodiment 1 of drawing 1, and that explanation is omitted.

[0066]A different point from the thing of Embodiment 1 has the cell phone unit 300 shown in this drawing 3 in having had and constituted the communication destination decontrol means 301 and the contact alteration means 302 in the component of Embodiment 1.

[0067]The communication destination decontrol means 301 cancels the control explained by Embodiment 1 by the communication destination control means 107.

[0068]The contact alteration means 302 changes the priority of the telephone number memorized by the contact memory measure 106 and the memory telephone number specified by the communication ranking setting means 108.

[0069]Operation of the cell phone unit 300 of such composition is explained.

[0070]As first Embodiment 1 explained, when the communication destination control means 107 is in the state of controlling the communication destination from the cell phone unit 300 possible only to the memory telephone number according to the priority specified by the communication ranking setting means 108, the operation of which the control is canceled is explained.

[0071]In this case, an owner inputs a communication destination decontrol command after submission operation from other telephone devices. If the cell phone unit 300 receives this communication destination decontrol command, the communication destination decontrol



means 301 will cancel the above-mentioned control state of the communication destination control means 107 according to that communication destination decontrol command. By this, the cell phone unit 300 is anticipated-use possible.

[0072]When making change of the memory telephone number of the contact memory measure 106, and a specification change of the priority after this change, after an owner inputs a telephone number change command and a communication destination priority variation order after submission operation from other telephone devices, a new telephone number and priority are inputted.

[0073]If the cell phone unit 300 receives the telephone number change command and a communication destination priority variation order, The contact alteration means 302 serves as the mode according to these commands, the telephone number of the contact memory measure 106 is changed into the new telephone number received after that, and the priority specified by the communication ranking setting means 108 after this change is changed into a new priority.

[0074]From the cell phone unit 300, the communication destination decontrol means 301 is inputted by the password, and In addition, this inputted password, When the password memorized by the password memory measure 104 is judged to be coincidence by the decision means 105, the above-mentioned control state of the communication destination control means 107 is canceled. By this, the cell phone unit 300 is anticipated-use possible.

[0075]From the cell phone unit 300, a password is inputted by the contact alteration means 302 and This inputted password, In [ become the mode in which change of a memory telephone number and a specification change of the priority after this change are made when the password memorized by the password memory measure 104 is judged to be coincidence by the decision means 105, and ] this state, By the key operation from the cell phone unit 300, the telephone number of the contact memory measure 106 can be changed into a new telephone number, and the priority can be changed into a new priority.

[0076]Thus, the telephone number of the communication destination for which the owner was beforehand remembered by the cell phone unit 300 with remote control or hand control according to the cell phone unit 300 of Embodiment 2, It can change arbitrarily, or the communication regulation by the communication destination control means 107 can be canceled, and the cell phone unit 300 can be returned to a normal state.

[0077]The function of Embodiment 1 or the cell phone unit 100,300 of 2 explained above is applicable to information terminal equipment provided with the cellular phone and computer function which are used with a mobile communications system etc.

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## TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]However, in the conventional device, for example at the time of loss or the theft of the cell phone unit 500. When the possessor transmits the control code 501 and key operation of the cell phone unit 500 is repealed, Since the cell phone unit 500 is not displayed no communication information, or it is pronounced, and connection cannot be attached and key operation is invalid, when the person who found the cell phone unit 500 tells the loss, There is a problem that connection by use of the cell phone unit 500 cannot be performed, either.

[0009]This invention is made in view of this point, and is a thing.

The purpose is to provide the unauthorized use prevention method of a cell phone unit and a cell phone unit which it can prevent, for example, a finder can have at the time of loss, and can mainly contact from a finding cell phone unit.

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**TECHNICAL FIELD**

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[Field of the Invention]This invention about the unauthorized use prevention method of a cell phone unit and a cell phone unit which communicates with other telephone devices via the base station device in a mobile communications system, When especially loss or a theft etc. is encountered, it is related with the unauthorized use prevention method of the cell phone unit which can prevent an unauthorized use, and a cell phone unit.

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PRIOR ART

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[Description of the Prior Art]Conventionally, unauthorized use prevention methods of this kind of cell phone unit and a cell phone unit include some which are indicated to JP,6-188829,A. The cell phone unit currently indicated by this gazette is explained with reference to drawing 4. [0003]Drawing 4 is a block diagram showing the composition of the conventional cell phone unit.

[0004]When loss or a theft is encountered, the cell phone unit 400 shown in drawing 4 is constituted so that the cell phone unit 400 may come to an owner on the contrary, and a disable message and a return message may be generated and it may display.

[0005]That is, based on the ID code registered by the ID code registration means 401, communication is forbidden, and at the time of this prohibition, the communication prohibition control means 402 generates a disable message and a return message, and displays by the warning information announcement means 403.

[0006]In addition, the cell phone unit currently indicated by JP,11-69447,A is explained with reference to drawing 5.

[0007]The cell phone unit 500 shown in this drawing 5 is the communication equipment which the failure of loss or the use to the time of a theft by an owner can set up easily.

Memorize the control code 501 transmitted from a mating terminal device at the time of mail arrival to the code storage part 502, and by the key operation invalid means 503. When the mothballs code 504 beforehand memorized by the code storage part 502 and the control code 501 are compared and both sides are in agreement, key operation after it is repealed.

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EFFECT OF THE INVENTION

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[Effect of the Invention]As explained above, according to this invention, an unauthorized use can be prevented, for example, a finder can have at the time of loss, and it can mainly contact from a finding cell phone unit.

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CLAIMS

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[Claim(s)]

[Claim 1]A cell phone unit comprising:

A detection means to detect location registration information on a self-cell phone unit.

An auto-answering means which auto-answers according to an auto-answering command received from other telephone devices at the time of detection of said location registration information.

The 1st memory measure that memorizes a password.

A password received from a telephone device besides the above after said auto-answering, A decision means which judges coincidence/disagreement with said memorized password, the 2nd memory measure that memorizes two or more telephone numbers, and a control means regulated so that it can send only by a memory telephone number of said 2nd memory measure from a self-cell phone unit when coincidence of said password is judged.

[Claim 2]The cell phone unit according to claim 1 controlling a control means to be sent by a memory telephone number when a certain operation is performed from a self-cell phone unit at the time of regulation.

[Claim 3]Provide a setting means which specifies a priority used for dispatch to two or more telephone numbers memorized by the 2nd memory measure, and a control means, The cell phone unit according to claim 1, wherein dispatch from a self-cell phone unit regulates so that it may be possible only at a telephone number of said 2nd memory measure according to said priority when coincidence of a password is judged by a decision means.

[Claim 4]The cell phone unit according to claim 3 controlling a control means to be sent by a memory telephone number according to a priority whenever a certain operation is performed from a self-cell phone unit at the time of regulation.

[Claim 5]The cell phone unit according to any one of claims 1 to 4 providing a release means

of which regulation by a control means is canceled according to a release instruction received from other telephone devices when coincidence of a password is judged by a decision means.

[Claim 6]The cell phone unit according to any one of claims 1 to 5 providing the 2nd release means of which regulation by a control means is canceled when passwords by which the operational input was carried out from a self-cell phone unit are judged to be a memory password of the 1st memory measure, and coincidence by a decision means.

[Claim 7]When coincidence of a password is judged by a decision means, according to a variation order received from other telephone devices, The cell phone unit possessing an alteration means which serves as the mode of a memory telephone number of the 2nd memory measure which can be changed, and changes said memory telephone number into a new telephone number received from a telephone device besides the above at the time of this mode according to any one of claims 1 to 6.

[Claim 8]When passwords by which the operational input was carried out from a self-cell phone unit are judged to be a memory password of the 1st memory measure, and coincidence by a decision means, The cell phone unit possessing the 2nd alteration means that serves as the mode of a memory telephone number of the 2nd memory measure which can be changed, and changes said memory telephone number into a new telephone number by which the operational input was carried out from a self-cell phone unit at the time of this mode according to any one of claims 1 to 7.

[Claim 9]When coincidence of a password is judged by a decision means, according to a variation order received from other telephone devices, becoming the mode of a priority specified by a setting means which can be changed -- the time of this mode -- said priority -- said -- others -- the cell phone unit possessing the 3rd alteration means changed into a new priority received from a telephone device according to any one of claims 3 to 8.

[Claim 10]When passwords by which the operational input was carried out from a self-cell phone unit are judged to be a memory password of the 1st memory measure, and coincidence by a decision means, The cell phone unit possessing the 4th alteration means that serves as the mode of a priority specified by a setting means which can be changed, and changes said priority into a new priority by which the operational input was carried out from a self-cell phone unit at the time of this mode according to any one of claims 3 to 9.

[Claim 11]Information terminal equipment possessing the cell phone unit according to any one of claims 1 to 10.

[Claim 12]A mobile communications system comprising:

A 2nd detection means to provide a cell phone unit according to any one of claims 1 to 10 or the information terminal equipment according to claim 11, and to detect location registration information on said cell phone unit.

The 3rd memory measure that memorizes an auto-answering command and a password which

received from other telephone devices at the time of un-detecting of said location registration information, A base station device which has a transmitting means which transmits an auto-answering command and a password which were memorized by said 3rd memory measure to said cell phone unit at the time of detection of location registration information transmitted from said cell phone unit.

[Claim 13]A password which auto-answered according to an auto-answering command received from other telephone devices at the time of detection of location registration information on a self-cell phone unit, and was received from a telephone device besides the above after this auto-answering, An unauthorized use prevention method of a cell phone unit regulating so that it may be possible only at a telephone number dispatch from a self-cell phone unit was beforehand remembered to be, when a password memorized beforehand is in agreement.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]The block diagram showing the composition of the cell phone unit concerning the embodiment of the invention 1

[Drawing 2]The block diagram showing the composition of the base station device which communicates with the cell phone unit concerning the above-mentioned Embodiment 1

[Drawing 3]The block diagram showing the composition of the cell phone unit concerning the embodiment of the invention 2

[Drawing 4]The block diagram showing the composition of the conventional cell phone unit

[Drawing 5]The block diagram showing the composition of other conventional cell phone units

[Description of Notations]

A cell phone unit of 100,300 embodiments

101,201 Detection means

102 Auto-answering means

104 Password memory measure

105 Decision means

106 Contact memory measure

107 Communication destination control means

108 Communication ranking setting means

200 Base station device

202 Input memory measure

203 Transmit information transmitting means

301 Communication destination decontrol means

302 Contact alteration means

[Translation done.]

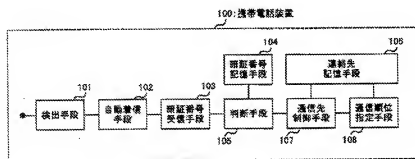
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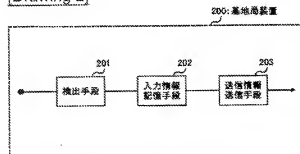
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

## DRAWINGS

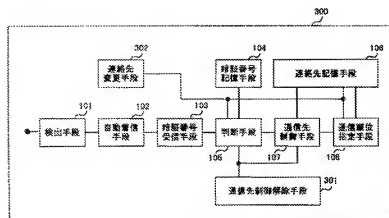
[Drawing 1]



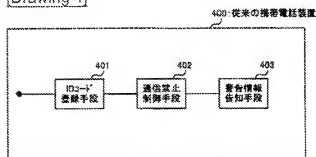
[Drawing 2]



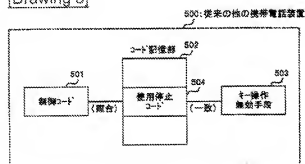
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Translation done.]